Developing Local Resources for Groundwater Replenishment
Over 10% of California’s population
> 400 water wells
Pumping 250,000 acre feet
Local Groundwater Supply
Central and West Coast Basins

California
Santa Monica Mtns
Los Angeles
Palos Verdes Hills
Pacific Ocean

Central Basin
West Coast Basin
San Gabriel Mtns
Puente Hills
San Gabriel Valley
San Gabriel River
Long Beach

4 Million People
Area = 420 mi²
43 Cities
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Water Wells – over 400 active wells
In our region...

Groundwater provides 40% of total water demand.
1900s-1950s OVERDRAFT

- Plunging Water Levels
- Loss of Groundwater Supply
- Wells going Dry
- Seawater Intrusion
Solutions

1) Court adjudicated (capped) groundwater pumping to 92 billion gallons per year (281,835 acre feet per year).

2) LA County Flood Control District installed 16 miles of injection wells along the coast to pump in freshwater and stop the seawater intrusion.

3) WRD formed in 1959 to replenish aquifers and protect groundwater quality.
Rio Hondo spreading grounds

San Gabriel spreading grounds
Central Basin Replenishment Sources

- Stormwater: 54,000
- Recycled Water: 50,000
- Imported Water: 21,000

Acre Feet
Results of WRD basin management

Rising water levels & drought protection
Benefits of Groundwater

- Local reliable supply
- Drought protection
- Cost effective

Cost per Acre Foot

- Imported Water
- Groundwater
Historical Cost of Groundwater compared to Imported Water
(cost per Acre Foot)
Current Imported Water Demands

Montebello Forebay Spreading Grounds
21,000 AFY (out of 125,000 AFY)

Alamitos Gap Barrier
3,000 AFY (out of 6,000 AFY)

West Coast Barrier
3,400 AFY (out of 15,000 AFY)

Dominguez Gap Barrier
6,000 AFY (out of 9,000 AFY)
WRD’s WIN Program will reduce or eliminate need for imported water to replenish groundwater.
Collection of projects to eliminate WRD demand for imported water

Projects to:

- Capture and conserve additional stormwater
- Increase use of recycled water for groundwater replenishment

Creates locally self-sufficient groundwater supply for 10% of population of California (4 million residents in the Central and West Coast basins)
Stormwater Projects
under WIN Program
Inflatable rubber dams are proven technology to halt river flow and promote infiltration.

2 new dams in 2008 in San Gabriel River. Joint project between WRD/LADPW.

Provide 3,600 afy more storm water capture and infiltration.
Increase Conservation Pool behind the Whittier Narrows Dam

- WND is flood control project built by Army Corps 1957.
- Oil wells behind dam limited water storage capability (conservation pool).
- WRD/LADPW cooperated to remove oil wells.
- Conservation pool increased allowing 1,500 afy more storm water capture.
- Can increase by another 1,000 afy with additional study
Two-way pipeline (78” diam, 1.2 mi) to divert flows between Rio Hondo and San Gabriel.

WRD/LACDPW project will go online March 2011.

Will increase storm water capture by 1,300 afy, also more recharge flexibility.
Increase Vadose Zone

- **Shallow water table limits storm water recharge.**

- **Concept to install pumping wells to drawdown water table, exposing more vadose zone, and freeing up more room for storm water capture / recharge.**

- **Modeling shows 17,000 afy more storm water can be captured.**
Low Impact Developments (LIDS)

- Set of approaches to reduce runoff and pollutants from reaching surface waterways, and promote recharge.
  - Bioswales
  - Porous Pavement
  - Dry wells
  - Rain Harvesting
  - Smart Landscaping